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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/281,358 | 03/30/1999 | ROGER PANICACCI | 08305/031001 | 7144 |

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[REDACTED] EXAMINER

TRAN, NHAN T

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2615

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/281,358 | PANICACCI, ROGER |
| | Examiner | Art Unit |
| | Nhan T. Tran | 2615 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____ .
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____ .
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "said first order" in page 35, line 2 of claim 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 - 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Cho (US 6,166,367).

Regarding claim 1, Cho discloses an active pixel sensor device comprising:

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a pixel sensor array of photosensor elements (110), arranged in logical units, each photosensor element defining a pixel with a CMOS photosensor element, an in-pixel buffer element and an in-pixel selector element, the photosensor elements arranged in an array (see fig. 1; col. 4, lines 4-12);

a plurality of analog-to-digital converters, which are included in programmable analog arithmetic circuit (PAAC 210), formed on the same substrate as the pixel sensor array, and each associated with at least two logical units (more than one columns) of the pixel sensor array, each analog-to-digital converter including an ADC portion which receives an analog signal from one of the pixel sensors when the selector element is enabled, and converts the analog signal to digital value (see fig. 2, 3; col. 4, lines 25-34, col. 10, lines 57-62), and at least two units storage elements, which are corresponding to the bit storage for the A/D converter, associated with the analog to digital converter, each storing one unit (one bit) of digital information indicating the output signal (see col. 8, lines 18-24).

Regarding claim 2, the logical units are lines of the array including either columns of the array or rows of the array (see fig. 1; col. 4, lines 26-34).

Regarding claim 3, the analog-to-digital converters are associated with at least two adjacent lines of array, which is clearly shown in fig. 1 where each arithmetic cell receives signals from more than one column as described in col. 4, lines 26-34 & lines 59-63.

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Regarding claim 4, Cho further discloses a readout controller for controlling readout of information from the photosensor elements by controlling the analog-to-digital converters to each convert information from a first line of the array (see col. 3, lines 50-54, lines 64-67), to store the information of the first line of the array in one of the unit storage elements which are corresponding to bit storage for the A/D converter, then to read out a second line of the array, and store the information from the second line of the array in the other of the unit storage elements, and then read out the information from all of the unit storage elements in a desired order. Since the A/D converter performs for an 8-bit analog-to-digital conversion, it must have bit storage units to store at least the first unit information and then store the second unit information and read out the information from all of the unit storage (see col. 8, lines 23-24).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negative by the manner in which the invention was made.

Claims 5 - 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho (US 6,166,367) in view of Adiletta (US 6,295,546).

Regarding claim 5, Cho discloses a method of operating a pixel sensor array comprising:

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obtaining a pixel sensor array of photosensitive elements (110), each having a photosensitive element in a pixel, a buffer in the pixel associated with the photosensitive element, and a selector transistor in the pixel which is enabled to allow a signal from the pixel to pass, and disabled to block the signal from passing (see fig. 1; col. 4, lines 4-12);

connecting a plurality of the outputs of the selector transistors to one another, to form a plurality of logical units, each logical unit formed by a plurality of the output transistors which are connected to one another as shown in fig. 1; col. 3, lines 50-60.

receiving, in a plurality of A/D converter units, a plurality of image information from a plurality of A/D converter units and A/D converting the information and logically storing the information in a first storage unit (i.e., storing the first bit) as described in col. 8, lines 18-24;

receiving information in the plurality of A/D converter units from a second logical unit, adjacent to the first logical unit (see col. 4, lines 59-63 in which the second logical unit is presented with the next column being selected by switching the communication channels between different columns that are adjacent to each other), and A/D converting and logically storing the additional information (i.e., storing subsequent bit) as described in col. 8, lines 18-24.

Cho does not disclose reading out the information from the A/D conversion unit in a different order than an order in which the information was converted. However, Adiletta teaches a variation of reading out the digital image information from the storage unit in a double buffer design to facilitate the selection of either the little endian or GIB endian format for providing the appropriate output conversion format as suggested in fig. 43B, col. 63, lines 55-61 & col. 64, lines 2-8.

Therefore, it would have been obvious to one of ordinary skill in the art to vary the readout order process by applying the method taught by Adiletta to facilitate the selection of either the little endian or GIB endian format for providing the appropriate output conversion format.

Regarding claim 6, Cho clearly discloses that the different order according claim 5 is in a serial order (see col. 8, lines 18-24).

Regarding claim 7, Cho also discloses that the units are linear units which are one of rows and columns (see fig. 1), the first order skips lines between conversions which present with the process of each bit until the desired number of bits have been obtained, and second order is a complete order which is the complete one byte (8-bit conversion) of information as described in col. 8, lines 18-24.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (703) 605-4246. The examiner can normally be reached on Monday - Friday, 8:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew B Christensen can be reached on (703) 308-9644. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

NT.

December 16, 2002



ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600